

**Abstract**

The invention relates to a process and a reaction plant for the chemical coating of shaped articles with covalently bonded polymers. The polymerisation step and optionally preceding or succeeding reaction steps are carried out in a reaction plant with heat-exchange device in such a way that firstly equilibration is carried out with the reaction solution, the flow is then interrupted, and the reaction solution is brought to the reaction temperature externally and brought to reaction without further pumping of the reaction solution.